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Résumé: Pour la première fois depuis de nombreuses années, un gouvernement conservateur a accédé au pouvoir au Danemark en 2001, en partie à cause de l'insatisfaction des électeurs quant aux politiques d'immigration menées par les socio-démocrates. On décrit la compétition électorale au Danemark comme portant essentiellement sur deux questions majeures -- la taille du secteur public et l'immigration -- et modélise l'équilibre politique à l'aide du concept de PUNE (Party Unanimity Nash Equilibrium), qui permet d'obtenir des équilibres dans des espaces politiques multi-dimensionnels lorsque les partis se forment de manière endogène. En calibrant le modèle sur des données électorales danoises, on montre que la xénophobie est susceptible de réduire la taille du secteur public danois d'un montant équivalent à la moitié de l'écart-type de la distribution de probabilité des opinions des électeurs danois concernant la taille idéale du secteur public.

Abstract: For the first time in many years, a conservative government came to power in Denmark in 2001, due primarily to the citizenry's dissatisfaction with social-democratic policies on immigration. We represent political competition in denmark as taking place on two issues -- the size of the public sector and immigration -- and model political equilibrium using the party-unanimity- Nash-equilibrium concept (PUNE), which generates equilibria on multi-dimensional policy spaces where parties form endogenously. By fitting the model to Danish data, we argue that citizen xenophobia may be expected to decrease the size of the Danish public sector by an amount equal to one-half of a standard deviation of the probability distribution of citizens' views as to what the optimal size of public sector is.

Mots clés : Equilibre politique, PUNE, xénophobie, redistribution

Key Words : Political equilibrium, PUNE, xenophobia, distribution

Classification JEL: D3, D72

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"The political economy of xenophobia and distribution: The case of Denmark[*]"

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Abstract

For the first time in many years, a conservative government came to power in Denmark in 2001, due primarily to the citizenry's disaffection with social-democratic policies on immigration. We represent political competition in Denmark as taking place over two issues --the size of the public sector and immigration -- and model political equilibrium using the party-unanimity-Nash-equilibrium concept(PUNE), which generates equilibria on multi-dimensional policy spaces where parties form endogenously. By fitting the model to Danish data, we argue that citizen xenophobia may be expected to decrease the size of the Danish public sector by an amount equal to one-half of a standard deviation of the probability distribution of citizens' views as to what the optimal size of the public sector is.

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1. Politics and racism in Denmark

With the 2001 election, the Social Democratic Party (SDP), primary architects of the Danish welfare state, lost its status, for the first time since 1920, as the largest party. The Liberal Party won a larger vote share (see Table 1), and formed a coalition government with the Conservatives. For a parliamentary majority, this coalition has, in the intervening period, relied upon the support of the rightwing populist, anti-immigrant Danish People's Party.

Many observers believe that the fall of the social-democratic government in Denmark is due to its failure to respond adequately to the anti-immigrant sentiment among the native citizenry. Although immigrants and their descendents account for only about 7% of the population, their presence has provoked a remarkable reaction among natives. Upon gaining power, the Liberal-Conservative coalition passed a law, in May 2002, restricting the rights of immigrants in a number ways: (1) refugee status will henceforth be granted only under stricter conditions (not to include those fleeing from war or famine); (2) permanent-resident permits will be granted after seven years of residence, instead of three; (3) residents are no longer permitted to bring in a foreign spouse under the age of 24; (4) spouses will not be allowed to join their partners in Denmark unless the couple have a sufficiently large income; (5) applicants for Danish nationality must demonstrate linguistic ability of a 14-year old native, and (6) reunification with parents over 60 years of age is abolished.

For the purposes of this article, we will often describe anti-immigrant feeling as xenophobia. Ours is not a sociological or psychological investigation; we observe the

distribution of xenophobic views based on voter survey data, and do not inquire into their causes or possible justifications.

Our concern in this article is with the effect that increasing Danish xenophobic sentiment among voters will have on the size of the welfare state, as the latter is determined through political competition. We will argue that the size of the welfare state and the government's position on immigration are the two most important issues in contemporary Danish politics. Political parties – of which there are ten in Denmark—put forward positions on both these issues, and voters choose among the parties based on their preferences on the two issues. We will model the political game among these parties, and then ask: How would the equilibrium values of the parties' positions on the size of the public sector change, were voters less xenophobic? We will attempt to answer the question by computing what the equilibrium in political competition would deliver, with regard to the size of the public sector, were the distribution of voter xenophobic attitudes different from what it is.

It is conceptually useful to distinguish between two ways in which anti-immigrant voter sentiment can alter the equilibrium party platforms on the issue of pubic-sector size. First, there is a direct effect which we call the *anti-solidarity effect* (ASE)*:* to the extent that voters dislike immigrants, and believe that immigrants exploit the welfare state, they may desire to decrease the generosity of state benefits. It is often said that the generous welfare states of the Nordic countries are the historical consequence of population homogeneity, engendering solidarity among citizens. The anti-solidarity effect is the other side of this coin.

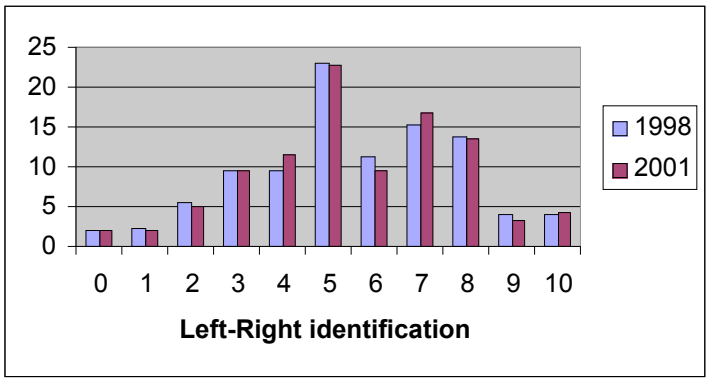
The second effect is indirect. Suppose that a voter is very xenophobic, although quite moderate on the issue of public sector size: she may vote for a xenophobic party if the immigration issue is sufficiently important for her, even if that party is more right-wing on the size of the public sector than she is. If there are many voters of this kind, then parties that want large cuts in the size of the public sector may gain larger support than they would, were immigration not a political issue. We call this the *policy-bundle effect* (PBE). It is a political portfolio effect, a consequence of the bundling of issues.

In our analysis, we decompose the total effect of xenophobia on equilibrium values of party policy on public-sector size into these two effects.

Our data consist of micro-data from the Danish Election Survey, Year 1998 (2001 respondents, 327 variables) and Year 2001 (2026 respondents, 316 variables)[]. Table 1 reports the vote shares obtained by the various parties, in the 1998 and 2001 elections. In the first column, we report the vote shares obtained from the survey answers (among respondents who answered the question); the second column reports the actual vote shares. Note that reported vote share and actual vote share are generally very close (although respondents in 1998 tend to underreport the vote for the Social Democratic party).

[] Our sources are the "Danish Election Survey 1998", which was originally collected by AC Nielsen AIM for Jørgen Goul Andersen, Johannes Andersen, Ole Borre and Hans Jørgen Nielsen and the "Danish Election Survey 2001", originally collected by Jørgen Goul Andersen, Ole Borre, Hans Jørgen Nielsen, Johannes Andersen, Søren Risbjerg Thomsen and Jørgen Elklit. These surveys, along with the related documentation , have been placed, for future access, in the Danish Data Archive (archive numbers DDA-4189 and DDA-12516). The results and interpretation in the current paper are the sole responsibility of the authors.

Parties are ranked on a Left-Right scale, as perceived by the voters.[1] The graph below depicts the distribution of voters' Left/Right identification.[2]



Although the vote share of the Left parties decreased dramatically between the 1998 and 2001 elections, Left-Right identification among voters remained remarkably stable: the distributions are almost identical. (For 1998, the average answer is 5.6 ; for 2001, the average answer is 5.5.) Voters' responses on this question may be related to the change in perceived position of parties between 1998 and 2001: while Left parties are perceived to be approximately stable, Right and Extreme Right parties are perceived to move toward the center in 2001.

Table 2 presents the average perception among voters of the parties' positions on the economic issue (size of the public sector) and the immigration issue (see the exact definition in section below). Note that on both issues, the ranking of parties is very similar to their ranking on the Left-Right scale. In particular, the two most anti -

[1] This scale derives from the answers to the following question: "In politics one often talks about left and right. Where would you place yourself on this scale? Where would you place the various parties on this scale?" (Show a card with 11 possible values, from 0 indicating left to 10 indicating right.) For each party we compute the average answer.

[2] That is, answers to the question "Where would you place yourself?"

immigrant parties, the Danish People's Party and the Progress Party, are also the most conservative on the economic issue.[3] .

In order to assess the main political issues in Denmark, we use a question about the problems that respondents perceive as being the most important in Denmark. Table 3 reports, for a selection of issues, the number of individuals (in 1998, out of a total of 2,001 respondents) who listed the issue in question as among the four most important problems facing the country. Problems are ranked according to the number of respondents who reported this specific problem as the single most important in the country (down to a number of 14 respondents).

Clearly, the health issue is the single most important problem: over 900 respondents, almost one half of the sample, name either "Health sector and the hospital sector" or "Nursing homes / domiciliary care" as one of the four most important problems. Immigrant and refugee- related issues appear second (670 respondents), followed by a number of social or economic issues: conditions for the aged (393), families with children / day-care centers (341), employment, unemployment including labor market policy (303), and social problems including social policy (171). Environmental issues are also considered to be important: environment / environmental issues (377), and pollution (32). These problems are also ranked the highest on the list when individuals are asked which problems were the most important when they decided how to vote.

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[3] This contrasts with the French situation where the main xenophobic party, the "National Front", tends to adopt intermediary positions on economic issues, trying to attract both an electorate of both self-employed conservative individuals and blue-collar workers supportive of more public sector expenditure.

Assuming that the issues hospital / health services, education in state schools, unemployment / welfare system are mainly questions about the size of the public sector, modeling political competition as focusing on the two issues of public- sector size and immigration appears to be an acceptable abstraction.

2. Political equilibrium: Theory

We propose that the spectrum of political parties can be captured, for our purposes, with a model that postulates three parties: a Left, a Right, and an Extreme Right. The Left party of the model will correspond to the union of the parties United Left, Socialist People's, Social Democratic and Liberal Democrat; the Right will correspond to the Center Democrats, Christian People's, Conservative, and Liberal parties; the Extreme Right will correspond to the Danish People's and Progress parties. We propose in this section a model of political equilibrium in which three parties compete on a two- dimensional policy space, which, in our application will be the *size of the public sector* and the *policy towards immigrants*.

The model is an extension of *party unanimity Nash equilibrium with endogenous parties* (PUNEEP) as defined in Roemer (2001, Chapter 13).

The data of the model consist of the information (H,F,T,v,n) where:

- H is a space of *voter types* equipped with a probability distribution F;
- $v(\cdot,h)$ is the utility function of a voter type defined on the policy space T, and
- n is the number of parties.

The equilibrium will consist in: a tuple $(L,R,ER,\Pi^{L},\Pi^{R},\Pi^{ER})$ where:

- (L,R,ER) is a partition of the set of voter types into *party memberships* or *constituencies:*
- $L \cup R \cup ER = H, \quad L \cap R = \varnothing, L \cap ER = \varnothing, R \cap ER = \varnothing$
- $\Pi^J \in T$ is the equilibrium platform of party J, for $J=L,R,ER$.

There will be no confusion if we refer to a *party* and its *constituency* by the same variable: e.g, ER for Extreme Right.

For our application, a voter's type will be an ordered pair (τ,ρ) where τ is the voter's ideal public sector size (which we sometimes call, for short, her 'tax rate') and ρ is her position on the immigration issue. The policy space T is a set of ordered pairs (t,r), which we may take to be the real plane, where t is a party's policy on the size of the public sector and r is its policy on immigration. The utility function of the polity is a function $v : T \times H \to \mathbf{R}$ given by

$$v(t,r;\tau,\rho) = -\alpha(t-\tau)^2 - \beta(r-\rho)^2 \qquad . \qquad (2.1)$$

We refer to β as the *relative salience of the immigration issue*, and assume it is the same for all voters.

Given three policies (π^L,π^R,π^{ER}) proposed by the parties, we define $\phi^J(\pi^L,\pi^R,\pi^{ER})$, for $J=L,R,ER$, as the fraction of the polity who prefer the policy of party J to the other two policies. In our model, if the policies are distinct, then the set of voters indifferent between two policies will always have F-measure zero, and so, in the case of distinct policies, these three fractions sum to unity.

Unlike the model of Downs, in our model, parties will generically propose distinct policies in equilibrium.

We briefly review the concept of party unanimity Nash equilibrium (PUNE). A party possesses *entrepreneurs* or *organizers,* and *members* or *constituents*. The members of a party are citizens who, in equilibrium, prefer that party's policy to the policies of the other parties. The entrepreneurs are professional politicians who make policy in the party. Think of them as a very small group of individuals, who are not identified with citizens characterized by a type. (Their type is irrelevant.) We will assume that the organizers of the Left and Right parties are each divided into two factions – an Opportunist faction and a Militant faction. The Opportunist faction wishes, in the party competition game, to propose a policy that will maximize the party's vote share. The Militant faction wishes to propose a policy that will maximize the average welfare of the party's constituency.

The proposal that parties consist of bargaining factions captures the view that parties have conflicting goals: to represent constituencies, and to win office, or , more generally, to maximize vote share. Mathematically, the virtue of the factional model of parties is that it engenders the existence of political equilibria when policy spaces are multi-dimensional.

We will assume that the Extreme Right party is a passive member of the party –competition game: it proposes a fixed policy, which could be viewed as the ideal policy of its organizers. Modeling the Extreme Right in this way is less than ideal: we would have preferred to model it as a party with factions that behaves in the manner of the other two parties. Doing so, however, immensely complicates the computation of equilibrium –already a time-consuming task—and so we have elected to treat the policy it proposes as exogenously given. Its *membership,* however, will be endogenous.

Without loss of generality, we could postulate a third faction in each of the L and R parties – a Reformist faction, whose members desire to maximize the average expected welfare of the party's constituency. As is shown in Roemer (2001), the set of equilibria will not change with this additional faction: in an appropriate sense, the Reformists are a 'convex combination' of the other two factions. Therefore we have dispensed with it, and also with having to define the probability of victory, which would be essential, were we have to discuss expected utility of voters, something of concern to Reformists.

We mention the Reformists because postulating their existence adds an important element of realism to the model, although, it turns out, it does not alter the model's equilibria. Thus, from the formal viewpoint, we may ignore Reformists[4].

The idea of PUNE is that parties compete against each other *strategically*, as in Nash equlibrium, and factions *bargain* with each other, inside parties. At an equilibrium, each party's platform is a best response to the other parties' platforms in the sense that it is a *bargaining solution* between the party's factions, given the platforms proposed by the other parties. In our application, this will be the case for the L and R parties.

Suppose the members of a party consist in all citizens whose types lie in the set $J \prod H$. We define the *average welfare function* for this party as a function mapping from T to the real numbers defined by :

[4] The reader may be puzzled that adding the Reformist faction does not change the equilibrium set. Adding them does change something, however: the interpretation of the bargaining powers of the factions associated with particular equilibria. Thus, we do not say that Reformists don't matter: it is just that they do not matter for the present analysis.

$$V^J(\pi) = \int_{h \in J} v(\pi, h)\, dF(h) \qquad . \qquad (2.2)$$

That is, $V^J(\pi)$ is just (a constant times) the average utility of the coalition J at the policy π. For (2.2) to make sense, we must assume that the utility functions v are unit-comparable.

Definition A *party unanimity Nash equilibrium* (PUNE) *for the model* $(H,F,T,v,3)$ *at the exogenous* ER *policy* π^{ER} is :

(a) a partition of the set of types $H = L \cup R \cup ER$, possibly ignoring a set of measure zero;

(b) a pair of policies (π^L, π^R)

such that:

(1a) Given (π^L, π^{ER}) there is no policy $\pi \in T$ such that:

$$V^R(\pi) \geq V^R(\pi^R) \text{ and } v^R(\pi^L, \pi, \pi^{ER}) \geq v^R(\pi^L, \pi^R, \pi^{ER})$$

with at least one of these inequalities strict;

(1b) Given (π^R, π^{ER}) there is no policy $\pi \in T$ such that:

$$V^L(\pi) \geq V^L(\pi^L) \text{ and } v^L(\pi, \pi^R, \pi^{ER}) \geq v^L(\pi^L, \pi^R, \pi^{ER})$$

with at least one of these inequalities strict;

(2) for $J=L,R,ER$, every member of coalition J prefers policy π^J to the other two policies, that is $h \in J \Rightarrow v(\pi^J, h) > v(\pi^{J'}, h)$ for $J' \neq J$.

Condition (1a) states that, when facing the policies π^{ER} and π^L, there is no feasible policy that would increase both the average welfare of party *R*'s constituents and the vote

fraction of party *R*. Thus, we may view policy π^R as being a *bargaining solution* between party *R*'s two factions when facing the oppositions' policies, as the Militants' desire to maximize the average welfare of constituents, and the Opportunists desire to maximize vote share. All we employ here is the assumption that a bargain must be Pareto efficient for the two players in the bargaining game. Condition (1b) similarly states that policy π^L is a bargaining solution for party *L*'s factions when facing the policies π^{ER} and π^R. Condition (2) states that the endogenous party memberships are stable: each party member prefers her party's policy to the other parties' policies.

There are two 'free' parameters in this equilibrium concept: one might think that the relative strength of the Militants with respect to the Opportunists in a party is an important variable, in determining where on the mini-Pareto frontier of the factions the bargaining solution lies. There is one such parameter for each party L and R. Thus, we can expect that, if there an equilibrium, there will be a two-parameter manifold of equilibria, where the elements in this manifold are associated with different pairs of relative bargaining strengths of the pairs of factions in L and R. This indeed turns out to be the case, as we will see below.

With differentiability, we can characterize a PUNE as the solution of a system of simultaneous equations. Denote by the gradient of the function Π^J with respect to the policy π^J. Denote by ∇V^J the gradient of V^J. Then, we can write the necessary conditions for a PUNE where π^L and π^R are interior points in *T* as:

(1a) there is a non-negative number *x* such that $\nabla_L \Pi^L(\pi^L,\pi^R,\pi^{ER}) = x\nabla V^L(\pi^L)$ (FOC)

(1b) there is a non-negative number *y* such that $\nabla_R \Pi^R(\pi^L,\pi^R,\pi^{ER}) = y\nabla V^R(\pi^R)$.

Condition (1a) says that the gradients of the vote share function and the average welfare function for party L point in opposite directions, and so, assuming local convexity, there is no direction in which the policy of the party can be altered so as to increase both the party's vote share and the average welfare of the party's constituents. Thus conditions (1a) and (1b) correspond exactly to the conditions (1a) and (1b) in the definition of PUNE. (All policies are interior in our application, since T is an open set.)

Our next task is to characterize PUNE as a system of equations, which requires us to formulate precisely the party constituencies. Denote the set of types who prefer a policy $\pi^a = (t^a, r^a)$ to policy $\pi^b = (t^b, r^b)$ by $\beta(\pi^a, \pi^b)$, and compute that

$$\beta(\pi^a, \pi^b) = \begin{cases} \{(t, r) \mid t < \tau(\pi^a, \pi^b, r)\} & \text{if } r^a < r^b \\ \{(t, r) \mid t > \tau(\pi^a, \pi^b, r)\} & \text{if } r^a > r^b \end{cases} \tag{2.3}$$

where $\tau(\pi^a, \pi^b, r) = \dfrac{t^{b2} - t^{a2} + 2r(t^a - t^b) + r(r^{b2} - r^{a2})}{2(r^b - r^a)}$. (2.4)

We will specify the value of the policy r so that larger r means more xenophobic (anti-immigrant). Thus, at equilibrium, we will expect that $r^L < r^R < r^{ER}$. For an equilibrium with this characteristic, it follows from (2.3) that the constituency L will be precisely:

$$L = \{(t, r) \in H \mid t < \min[\tau(\pi^L, \pi^R, r), \tau(\pi^L, \pi^{ER}, r)]\},$$

for these are the types who will prefer policy π^L to both other policies. In like manner, we have:

$$ER = \{(t, r) \mid t > \max[\tau(\pi^{ER}, \pi^R, r), \tau(\pi^{ER}, \pi^L, r)]$$

and R, of course, comprises the remaining types (except for a set of measure zero). In short-hand, if we define:

$$m(\pi^L,\pi^R,\pi^{ER},\theta) = \min[\pi(\pi^L,\pi^R,\theta),\pi(\pi^L,\pi^{ER},\theta)]$$
$$M(\pi^L,\pi^R,\pi^{ER},\theta) = \max[\pi(\pi^{ER},\pi^R,\theta),\pi(\pi^{ER},\pi^L,\theta)]$$

and we denote the vector consisting of all three policies as π, then we have:

$$L = \{(\pi,\theta) \mid \pi < m(\pi,\theta)\},\ R = \{(\pi,\theta) \mid m(\pi,\theta) < \pi < M(\pi,\theta)\},\ ER = \{(\pi,\theta) \mid \pi > M(\pi,\theta)\}.$$

Assuming the support of the distribution F is the real plane, we can therefore write:

$$\Pi^L(\pi) = \int_{-\infty}^{\infty}\int_{-\infty}^{m(\pi,\theta)} dF(\pi,\theta), \qquad (2.5a)$$

where the inside integral is over π and the outside integral is over θ, and in like manner:

$$\Pi^R(\pi) = \int_{-\infty}^{\infty}\int_{m(\pi,\theta)}^{M(\pi,\theta)} dF(\pi,\theta),\quad \Pi^{ER}(\pi) = \int_{-\infty}^{\infty}\int_{M(\pi,\theta)}^{\infty} dF(\pi,\theta) \quad . \qquad (2.5b)$$

Similarly, we can write:

$$V^L(\pi^L) = \int_{-\infty}^{\infty}\int_{-\infty}^{m(\pi,\theta)} v(\pi^L;\pi,\theta)dF(\pi,\theta),\quad V^R(\pi^R) = \int_{-\infty}^{\infty}\int_{m(\pi,\theta)}^{M(\pi,\theta)} v(\pi^R;\pi,\theta)dF(\pi,\theta). \quad (2.6)$$

The corresponding average-welfare function for the ER is irrelevant, because the ER plays a fixed policy.

Now we substitute these expressions into the first-order conditions (FOC), and we have fully modeled PUNE – that is, condition (2) of the definition of PUNE holds by construction.

The first-order conditions now comprise four equations in six unknowns – the four policy unknowns of the Left and Right parties, and the two Lagrangian multipliers *x* and *y*. If there is a solution, there will (generically) be, therefore, a two- parameter family of solutions. As we described above, the points in this family or manifold can be

viewed as corresponding to equilibria associated with different relative bargaining strengths of the pairs of factions in the parties L and R.

3. The policy bundle and anti-solidarity effects: Theory

Our strategy to compute the two effects of voter xenophobia on the size of the public sector will be to estimate the above PUNE model, and then to run two counterfactual experiments, which we now describe. The reader may ask: How can we calibrate a model to observation when the model only specifies a two dimensional manifold of equilibria and the observation is one point? The answer is that, fortunately, the equilibrium manifold turns out to be highly concentrated in the policy space, so that little precision is lost by the fact that there is a continuum of equilibria. We will illustrate this below.

We will summarize the values of the 'tax policy' t that parties propose in equilibrium by one *average expected policy,* that we will define later, which we will denote t^{exp}. Our concern is with the effect of xenophobia on the size of public sector (tax policy).

In the first counterfactual experiment, we assume that *immigration policy(r) is not an issue* in the election. Parties compete, that is, over the single issue of public-sector size, t. Voters, however, continue to possess exactly the distribution of preferences on public sector size as described by (the marginal distribution of) F. Since those preferences are influenced by their views on immigration, it continues to be the case, in this counterfactual contest, that voters' views on immigration will *indirectly* affect the political equilibrium, via their effect on preferences over size of the public sector. We

summarize the tax-policy equilibria of the set of PUNEs for this counterfactual election by one policy , $t_I^{\exp}$.

To compute these equilibria, we exogenously specify a fixed value for the *r* issue. (It does not matter what that value is.) This counterfactual election is equivalent to an election in which voter preferences are altered by setting α equal to zero. Thus the difference $t_I^{\exp} - t^{\exp}$ is exactly a measure of the policy-bundle effect: for in this election, there is no portfolio problem for the voter, as immigration policy is not an issue. Nevertheless, a voter's xenophobia will still cause her to vote for a lower size of the public sector than otherwise, if she does not wish to support immigrants with public funds. So the anti-solidarity effect is still active.

Next, we estimate (to be described below in section 4) a distribution of *racism-free demands for the public sector* That is, we estimate what the distribution of preferences over public-sector size would be, were all voters non-xenophobic, or not anti-immigrant. Call this distribution *G*. We next run a second unidimensional election, on public-sector size, where we assume the distribution of voter preferences on the tax issue is given by *G*. The results of this election will be sterilized of both the policy-bundle and the anti-solidarity effects. If we summarize the policy of the PUNEs here calculated by $t_{II}^{\exp}$ then we say that the total effect of xenophobic is $t_{II}^{\exp} - t^{\exp}$, and the anti-solidarity effect is $t_{II}^{\exp} - t_I^{\exp}$.

4. Estimation of model parameters

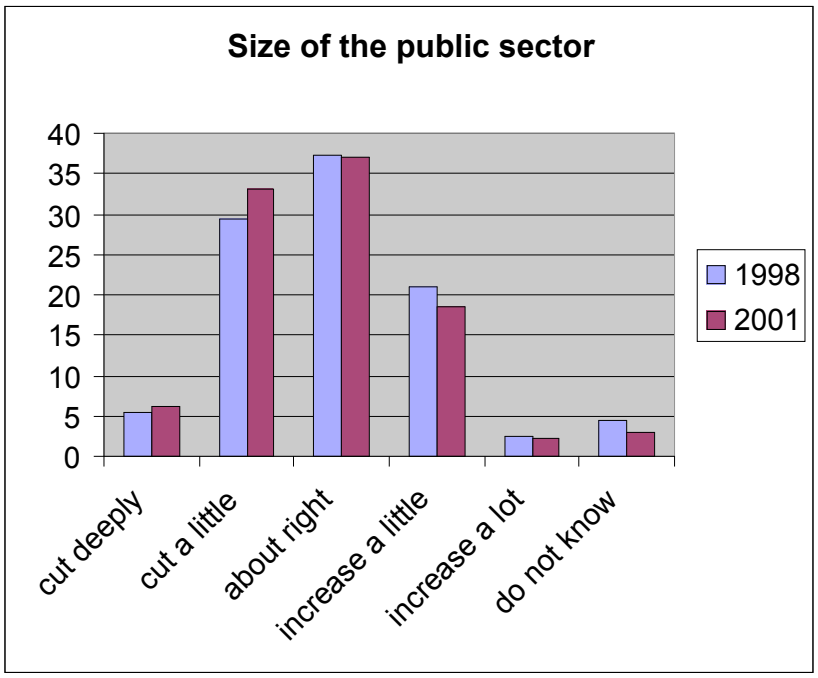
a. *Distribution of voter traits*

We discuss next our use of the Danish voter surveys to calibrate the distribution of voter preferences on the size of the public sector and immigration policy. We select questions that enable us to calibrate both voters' preferences and their views about where the parties stand on the issues in question. We use the two following questions.

i. The economic issue

Question : Among other things, the parties disagree about how big the public sector should be. Some parties say we should cut down on public revenue and expenditure, other say we should expect increasing expenditure and revenue in the future. Here is a scale from 1 to 5, where 1 means the revenue and expenditure should be cut substantially , 2 means that they should be cut a little, 3 means that the public revenue and expenditure are appropriate as they are now, 4 means that they should increase a little and 5 means that they should increase a lot. Where would you place party (name all the parties)? Where would you place yourself?

The distribution of answers to the question "Where would you place yourself?" is presented in the following chart:



A very large proportion of respondents are either satisfied with the current size of the public sector, or support only a small change in its size . About 37% of the respondents think that the current size of the public sector is appropriate, and fewer than 8% are in favor of a large change (in either direction). Among the respondents who support a change, a decrease in the size of the public sector receives more support than an increase.

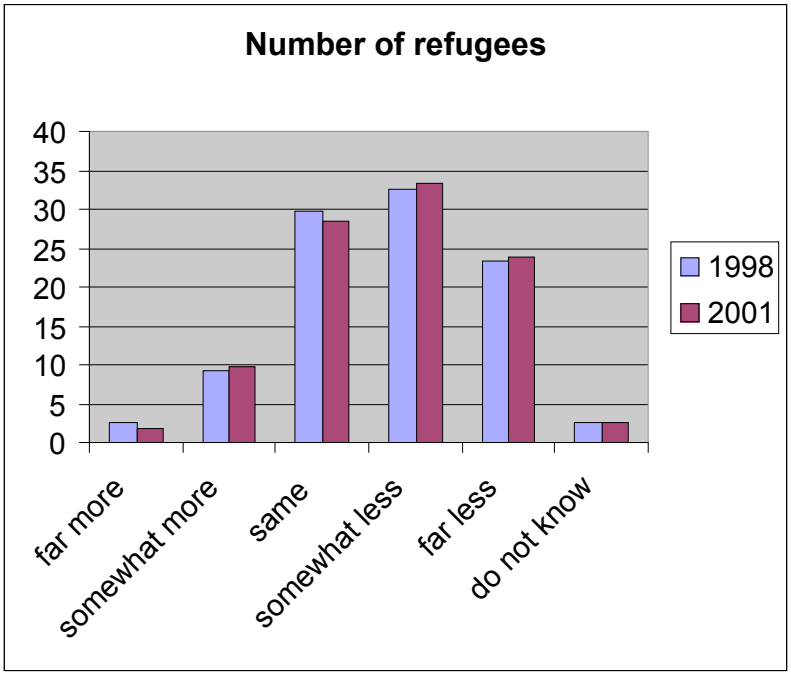
Between 1998 and 2001 preferences are quite stable; only a small increase in the number of people who support a smaller public sector is observed.

ii. the immigration issue

Question: Among other things, the parties disagree about how many refugees we can take. Some say we take too many. Other say we could easily take more. Here is a scale from 1 to 5, where 1 means that we should take far fewer refugees, 2 means we should take somewhat fewer, 3 means that we should continue to take the same number as now, 4 means that we should take somewhat more and 5

means that we should take a lot more refugees that we do now. Where would you place party X / yourself on this scale?

The distribution of answers to the question "Where would you place yourself?" is the following:



We observe, first, that respondents favor a decrease in the number of refugees accepted. Over 50% of the respondents think that the country takes too many refugees while fewer than 15% think that the country should take more. Second we observe stability of answers in this time period ; there is only a slight increase in the number of people wanting fewer refugees.

The correlation between views on the size of the public sector and the immigrant/ refugee issue will play an important part in our analysis of the anti-solidarity effect. Figures 1a and 1b present – respectively for years 1998 and 2001 -- the distribution of views on the economic issue, by answers to the refugee question. There is globally a

strong negative relationship between pro-public sector and pro-refugee views. In 1998, among people who want far fewer refugees, 18% want more public expenditure, and over 50% want less public expenditure, versus respectively 1% and 20% among those who think that the number of refugees is about right. Among people who want far more refugees, over 70% want more public expenditure, while only 20% of those who think that the number of refugees is about right want a larger public sector. Figures are similar in 2001.

To construct voters' preferences we used only these two questions, although the survey contains many questions regarding individuals' opinions on economic policy and immigration policy. Our choice was constrained by our desire to calibrate not only voters' preferences, but parties' positions on the issues.

To better understand exactly what these variables mean, we checked the correlation of our selected variables with other related variables. In particular, the interpretation of the economic variable is not obvious: respondents may desire an increase in the size of the public sector because they want a larger police force or more defense or more culture, which would have little bearing on the question we want to study. To have more information about what respondents have in mind when they answer this question, we studied the correlation with opinions about whether public expenditures for specific purposes (e.g.,defense, health care system, old age pensions, environmental problems, cultural purposes, police force, welfare benefits paid to the individual, and aid to refugees) should be increased or not. We find that our economic variable is highly correlated with support for public expenditures targeted to the poor (unemployment benefits, welfare benefits, wage support) and families (daycare, subsidies to families with

children, education). These are the kind of expenditures that are likely to be influenced by the anti-solidarity effect (immigrants are perceived as poorer and having more children than native Danes). Similarly, our economic variable is negatively correlated with support for an increase of spending on defense or police. We are therefore confident that the variable we use measures the kind of public expenditures with which we are concerned. Note that there is less possible misinterpretation with the immigration variable, since the scope of the question is in a sense limited.

Being confident that the two variables selected are good indicators of the preferences we want to estimate, we now proceed to construct a joint distribution of voters' traits. The questions on the size of the public sector and on the immigration issue call for qualitative answers. Because we wish to construct quantitative variables, we need to assign numerical values to the different possible answers. We chose to do the following: for both questions the value 0 is assigned to the *status quo* (same size of the public sector or same number of refugees). The value +1 (resp. –1) is assigned to the answer "somewhat more public sector" and "somewhat fewer refugees", (resp. to the answer "somewhat smaller public sector" and "somewhat more refugees"); the value +2 (resp. –2) is assigned to the answer "much larger public sector" and "far fewer refugees" (resp. to the answer "much smaller public sector" and "many more refugees". The quantitative variables thus defined are labeled π for the economic issue and for the immigration issue.

Here are some descriptive statistics for these two variables:

	1998			2001		
Variable	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs
π	-0.15	0.92	1,914	-0.24	0.91	1,967
$\square$	+0.67	1.02	1,948	+0.70	1.01	1,972
Correlation	-0.33		1,886	-0.34		1,933

As noted, individuals are on average favorable to a small decrease in the size of the public sector and to a large decrease in the number of refugees. The correlation coefficient between the two variables is –0.33 in 1998, and -0.34 in 2001. We approximate the joint distribution by a bivariate normal density with mean and standard deviation of the marginal distributions given in the table above and correlation coefficient = -0.33 in 1998 and –0.34 in 2001.

Remark on the choice of coding. Note that our two variables do not have a direct quantitative interpretation: they do not represent a tax rate or a number of refugees. When choosing the code for the economic variable and the immigration-related variable, we chose to select values that make sense relative to the context of the questionnaire (0 is the value of the *status quo* for the two options, 1 is the value to the answers "somewhat larger public sector" and "somewhat fewer refugees). Another option would have been to find numerical values that would have a meaning independent of the survey: for example, to translate answers into desired tax rates or numbers of refugees. This option seemed more hazardous to us in terms of interpretation, given the limited information contained in the survey data, and so we elected not to pursue it.

Note also that a linear transformation of the values scale leaves preferences unchanged, up to a transformation in $\square$. Since the parameter $\square$ will be estimated from the data, the question of the scale (the multiplicative constant) is unimportant. Given the symmetry in the wording of the question, we chose to assign symmetrical values (relative to the value of the status quo) to the answers "somewhat more" and "somewhat less". The only remaining question is how to compare "A lot more" to "Somewhat more. " We

have chosen to assume that "A lot more" is twice as much as "Somewhat more". A different choice would probably have given slightly different results.

b. *Parties' vote shares and platforms*

Vote shares obtained by the various parties, in the 1998 and 2001 elections, as well as the parties' proposals on the issues we are concerned about , were presented in Tables 1 and 2. As explained in section 2, we model Danish politics in terms of broader coalitions of parties: Left, Right and Extreme Right. We compute the broader parties' vote shares by summing the vote shares of the parties forming the coalition. These are reported in Table 4a. We also compute coalitions' positions, defined as the average of the parties' positions on the various issues, weighted by their vote share within the coalition. These are reported in Table 4b.

Note that, as far as the immigration issue is concerned, the Right party is closer to the voters' average point of view than the Left. As to the size of the public sector, the average point of view of voters is equidistant from the Left and Right positions.

If we compare the voters' perceived positions of the parties across time, we see that the Left coalition is viewed as almost stable, with only a very small anti-public sector, anti-immigrants shift over the three year period, whereas the Right and Extreme Right parties are viewed as having made more spectacular changes. The Right party becomes much more anti-immigrant and the Extreme Right party favors a higher public sector in the voters' perceptions. The Right and Extreme Right are viewed as converging: the Right moving on the immigrant issue and the Extreme Right moving on the economic issue.

c. *Estimation of the salience parameter* □

An individual with ideal public sector policy π and ideal immigration policy □ evaluates the policy platform *(t,r)* with the utility function $v(t,r;\square,\square) = \square(t-\square)^2 - \square(r-\square)^2$. Therefore, an individual with ideal tax policy π and ideal immigration policy □ prefers the policy platform *(t,r)* to the policy platform *(t',r')* if and only if

$$(t-t')\left[\square-\frac{t+t'}{2}\right]+\square(r-r')\left[\square-\frac{r+r'}{2}\right]>0. \qquad (4.1)$$

In order to estimate □, we first approximate the choice voters face by a binary choice: they can either vote for the Left coalition or a broad Right - Extreme Right coalition . The platform of the broad R-ER coalition is the average of Right and Extreme Right platforms, weighted by their vote shares. The platforms and vote shares of these two broad coalitions are given in the table below:

	1998			2001		
	Pub. Sector	Immigration	Vote share	Pub. Sector	Immigration	Vote share
Left	+0.67	-0.37	48.0	+0.53	-0.28	42.2
Right+ER	-0.94	+0.94	52.0	-0.95	+1.18	57.8

In the two party model, a rational voter with ideal tax policy □ and ideal immigration policy □ votes for the R-ER coalition if and only if

$$(t^{R\square ER}-t^{L})\left[\square-\frac{t^{R\square ER}+t^{L}}{2}\right]+\square(r^{R\square ER}-r^{L})\left[\square-\frac{r^{R\square ER}+r^{L}}{2}\right]>0. \qquad (4.2)$$

Using the observed positions of parties reported in the table above, (4.2) yields the following inequalities. For 1998, a voter of type $(\square,\square)$ should prefer the R-ER to the L coalition exactly when

$$\square > \frac{1.23}{\square}\square + \left(0.29 + \frac{0.17}{\square}\right); \qquad (4.3a)$$

for 2001, the analogous inequality is

$$\square > \frac{1.01}{\square}\square + \left(0.45 + \frac{0.21}{\square}\right) \qquad (4.3b)$$

The locus of voter types in type space who are indifferent between the R-ER group and the Left is a straight line containing the type $(\square,\square) = (\frac{t^L + t^{R\square ER}}{2}, \frac{r^L + r^{R\square ER}}{2})$. In $(\square,\square)$ space, the indifference curve become flatter as $\square$ increases.

In order to estimate $\square$, we introduce uncertainty. In the probabilistic model we assume that an individual votes for the Right coalition rather than for the Left if $\square\square_i + \square\square_i + cst + \square_i > 0$, where $\square_i$ is a random variable, i.i.d. across individuals, with mean zero. If we assume a standard normal distribution for the disturbances, we can use a probit model to estimate the vote equation. Results are given in Table 5, columns (1) and (3).

The empirical estimation of the indifference curves is therefore:

Year 1998: $\square = 1.94\square + 0.73$, Year 2001: $\square = 1.45\square + 0.48$,

to be compared with the indifference curves from the theory, given above. Note that for each year, we have only one parameter ($\square$) to adjust two variables (the constant and the slope). The fit of the model will be good if we can fit both the slope ($\frac{1.23}{\square} = 1.94$ for

1998, $\frac{1.01}{\beta} = 1.45$ for 2001) and the constant ($0.29+\frac{0.17}{\beta}$ =0.73 for 1998, $0.45+\frac{0.21}{\beta}$ =0.48 for 2001). In 1998, the former equation yields β=0.63 and the latter β=0.39 ; in 2001, the slope equation yields β=0.70 whereas the constant equation gives a very high value for β.

This suggests that the relative weight of the race-related issue is quite stable over time, but there is as well a significant party fixed effect that our model does not capture. We can also estimate a constrained empirical indifference curve, where we impose that a voter with ideal policy $(\alpha,\beta) = (\frac{t^L + t^{R\square ER}}{2}, \frac{r^L + r^{R\square ER}}{2})$ be indifferent (in expectation) between the two parties. In that case, the estimate for β is 0.43 in 1998, and 0.66 for 2001. For 1998, a value of β between 0.40 and 0.60 seems sensible, in 2001, a value between 0.60 and 0.70 would seem more appropriate. The data appear to reveal an increased importance of the immigration issue in voters' preferences.

Thus far, in the regression of table 6, we have used only the two independent variables *size of the public sector* and *anti-immigration*. Our estimation may be biased if these variables are correlated with other determinants of the vote. To avoid this omitted variable bias we add more controls to the estimation. (See Table 5, columns (2) and (4). The definition of the added independent variables is provided in an appendix) Adding controls reduces the size (in absolute values) of the coefficients on *anti-immigrant* and *size of the public sector*, but they still remain highly significant. The drop is particularly important in 2001. Yet, this does not substantially alter the ratio of these two coefficients, which is all that matters for our estimation of β. Indeed, the slope estimation for 1998

yields γ=0.59 and for 2001 γ=0.56. Thus the value of γ is not very sensitive to the specification.

We also use the explicit three-party model to estimate the salience parameter β, employing multinomial logit estimation. In the three- party case, we have three theoretical indifference curves to compute (indifference between ER and L, between R and L, and between R and ER), and to compare to the empirically estimated indifference curves. We do not report the details of those estimations here. Depending on the indifference curve we consider in order to estimate γ, we find quite different values for salience parameter. If we want to explain the ER vote, we need a very large γ (for 1998 $\gamma = 1.96$ and for 2001 $\gamma = 1.54$), whereas if we want to explain the split between Left and Right, a smaller γ is required (for 1998 $\gamma = 0.43$ and for 2001 $\gamma = 0.57$). The selection of an intermediate value seems appropriate : we believe that gamma about 0.6 or 0.65, as predicted by the average of the values obtained in two-party model, is a reasonable choice.

That the value of β appears to vary with the indifference curve estimated indicates that, in reality, Danes may possess different saliences for the immigration issue. To represent this variation would require expanding the space of types to possess three dimensions. Unfortunately, this would render the calculation of equilibrium excessively costly, if not intractable, with current hardware, and so we must be satisfied with the assumption of a value of β that is invariant over the polity.

Because we do not want to overly rely only on these estimations, we choose to compute the PUNEs and the counterfactual experiments for several values of α. We select α =0.4, α =0.6,α =1, and α =1.4 as an appropriate set of choices.

d. *Estimation of counterfactual preferences*

To compute the anti-solidarity effect, as we have described above, we need to construct counterfactual 'racism free' demands for the public sector, that is, voter preferences on the size of the public sector that would be observed were hostility towards immigrants and refugees not to reduce the feeling of solidarity. There is no unique way to do this; our results will depend on exactly how we interpret the significant correlation between opinions on the size of the public sector and the immigration issue. We next present several alternative ways of proceeding.

The first option is to consider the distribution of economic preferences by θ-type. As figures 1a-1b showed, there is a strong negative relationship between support for a larger public sector and support for a higher number of immigrants. The table below presents the mean and standard deviation of desired public-sector sizes conditional upon various values on the immigration issue.

	1998			2001		
π	Mean	St dev	Obs.	Mean	St dev	Obs.
$\square$ = -2	+0.91	0.91	46	+0.76	0.85	34
$\square$ = -1	+0.44	0.74	181	+0.29	0.83	196
$\square$ = 0	-0.01	0.72	581	-0.01	0.72	570
All	-0.15	0.92	1914	-0.24	0.91	1967

Table 6 Size of the public sector by degree of xenophobia

Using $\square$ = -2 as the reference non-racist group is probably too extreme (Recall that $\square$ = -2 for an individual who supports admitting many more refugees). The choice of $\square$ = -1 or $\square$ = 0 seems more reasonable. The average value of π in 1998 (resp. 2001) is +0.44 (resp. +0.29) among respondents with $\square$ = -1 and –0.01 (both years) among the $\square$ = 0 group; it is –0.15 (resp. –0.24) in the whole population.

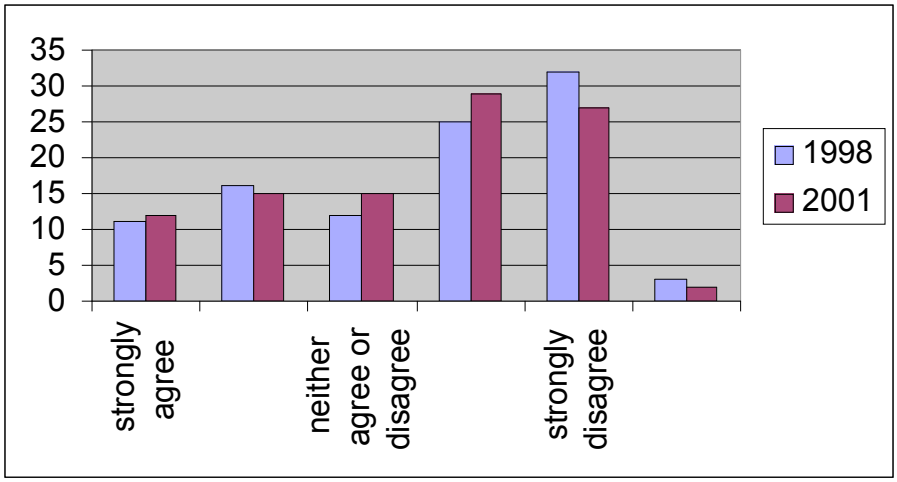
Another option is to use the question regarding 'social rights that should be given to immigrants or refugees'.

Question

Refugees and immigrants should have the same rights to social welfare as Danes, even though they are not Danish citizens.

The graph below presents the distribution of answers.

Immigrants should be given the same rights as Danes : Distribution of answers.



Note that a large number of Danes oppose giving foreigners the same social rights as the Danes.

Some summary statistics on economic preferences by answers to this question are presented in the table below. 'Agree' stands for either agree or strongly agree; 'don't disagree' stands for the group who neither agree or disagree.

	1998			2001		
	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs
Agee	+0.17	0.85	529	+0.06	0.88	550
Don't disagree	+0.08	0.85	765	-0.01	0.86	838
All	-0.15	0.92	1914	-0.24	0.91	1967

The conclusion of this preliminary analysis is that a reasonable counterfactual distribution of should have a mean between 0.1 and 0.2 and standard deviation about 0.85 for year 1998, and a mean between 0 and 0.1 and standard deviation about 0.85 for year 2001.

A third option is to use regression analysis to explore the empirical relationship between the size of the public sector and views on immigration. We estimate the following model:

$$\beta_i = \alpha PI_i + X_i'\gamma + \varepsilon_i,$$

where X_i is a set of individual characteristics, including social and demographic variables, as well as responses to questions about how the respondents feel on a number of justice issues, or about the behavior of people living on welfare. The disturbance term ε_i represents the unobserved characteristics of individual *i* ; it is a zero mean disturbance with standard normal distribution. We estimate the model with OLS. Results are presented in table 7 (The definition of the added independent variables is provided in an appendix).

The *anti-immigration* variable is highly significant and attracts the expected negative sign. Unsurprisingly, people who think that the unemployed are lazy, that too many people take advantage of the system, or who think that a higher level of justice is not desirable tend to favor lower tax rates. The young, female respondents tend to support a larger public sector.

There is no canonical way to decide upon the exact list of the variables that should be included on the right-hand side of the regression in table 7. The following example will show why this is the case. If we regress β on α alone with 1998 data, the coefficient on α is –0.30 (column 1). Now consider adding the variable *TakeAdvantage* to this regression, which measures whether the respondent thinks that too many people take advantage of the public system and receive benefits although they do not need them (see the appendix for the exact definition). The correlation between *AntiImmigration* and

TakeAdvantage is very large: 0.40. If we add the variable *TakeAdvantage* to the regression, the coefficient on *AntiImmigration* drops to –0.20 (*TakeAdvantage* is the variable that induces the biggest drop in the absolute value of the coefficient when added to the regression). Whether we should add this variable to the right- hand side of the regression depends on how we interpret the correlation between *AntiImmigration* and *TakeAdvantage*. If we believe that both hostility towards immigrants and a negative opinion of people who live on welfare are determined by the same psychological or social traits—for example, some intrinsic general distrust-- then the *TakeAdvantage* variable should be added. On the other hand, it might be argued that people who have a low opinion of welfare recipients do so because ethnic minorities are over-represented among them. In this case, including the *TakeAdvantage* variable on the right-hand side of the equation will induce an under-estimate of the direct influence of *AntiImmigration* on support for a larger public sector.[5] The question is hard to settle. We chose here to add all possible variables to the right-hand side of the regression.

The figures in the table 7 above suggest that an increase of 1 point (on the –2,2 scale) in the level of xenophobia reduces the *ProPublicSector* by $\hat{\beta}$ = 0.18 in 1998 and

[5] It is straightforward to deduce the direction of the bias in the simple starting case here where *AntiImmigration* is the single included variable, because it only depends on the sign of the correlation between *AntiImmigration* and *TakeAdvantage*. When more that one variable is included, what is required to deduce the direction of the bias is the correlation between *AntiImmigration* and *TakeAdvantage* net of the effect of other right-hand side variables. Here, the partial correlation between *AntiImmigration* and *TakeAdvantage* remains positive although smaller (0.27).

by $\hat{\beta}$ = 0.23 in 2001. We use this estimator to construct what we will define as racism-free demands for the public sector. We proceed as follows.

1. We select a critical level of *AntiImmigration* α_{ref} that we take to be the non-xenophobic threshold.
2. We define all individuals with $\alpha \leq \alpha_{ref}$ to be free of racism, and take their observed preferences for the public sector to be their racism-free economic preferences.
3. For all individuals with $\alpha > \alpha_{ref}$, we assume that there is some racism at play, and define their racism-free economic preferences to be those they would have if $\alpha = \alpha_{ref}$.

More specifically, consider an individual with observed ideal policy r and α. We define a racism- free demand for public sector by :

r if $\alpha \leq \alpha_{ref}$, and $r + \beta(\alpha - \alpha_{\text{ref}})$ if $\alpha \geq \alpha_{\text{ref}}$.

We will consider three different values for α_{ref}: $\alpha_{ref} = -2$ (option 1), $\alpha_{ref} = -1$ (option 2), $r_{ref} = 0$ (option 3). The table below presents the mean and standard deviation of the racism -free economic preferences for the three options, and the two years under study. The last line also presents the figures for observed preferences.

	1998		2001	
	Mean	Std. Dev.	Mean	Std. Dev.
Racism free, option 1	+0.33	0.87	+0.37	0.86
Racism free, option 2	+0.15	0.87	+0.15	0.86
Racism free, option 3	-0.01	0.88	-0.05	0.87
Observed preferences	-0.15	0.91	-0.24	0.91

Note that the obtained values are almost identical in 1998 and 2001. In 2001, there is a slight decrease in the observed demand for public sector compared to 1998, but an increase in the coefficient δ balances this effect, so that racism-free demands are practically the same. It should also be noted that these values are very similar to those obtained with the simpler methods presented above.

We conclude that a reasonable set of racism-free distributions of public-sector preferences for both years are normal distributions with mean = 0, mean = 0.15, mean = 0.3, and standard deviation 0.85.

5. Political equilibrium: Observation and prediction

As we described in section 4, we decided to perform all computations for each year for the cross product of four values of □. We chose the distribution of types (□,□) to be a bivariate normal distribution whose parameters are given in section 4. Almost the entire support of the distribution lies in the square [□2,2] □ [□2,2]. Figure 2 plots the density function for 1998. (The horizontal axis in the figure is □.)

We describe the computation of equilibrium PUNEs. We set the ER policy at its observed value. For each value of □, we computed many (approximately thirty) PUNEs[6]. Recall that to compute a PUNE, we must solve four simultaneous equations in six unknowns, such that two of the unknowns, the Lagrangian multipliers, are non-negative. We indeed find many PUNEs, as predicted by the theory. In what we now

[6] We do not compute more PUNEs because even this computation requires about eight hours of computer time, for each value of the □. And we tried many more variations of the model than we report here.

report, we restrict to PUNEs, for the 1998 election, where the *L* vote share lies in the interval [0.38, 0.58], whose mid-point, 0.48, is the observed vote share of *L* in the 1998 election. For the 2001 election, we performed a slightly different treatment. After computing 30 PUNEs, we selected the subset of 15 whose 3-vectors of party vote shares were closest to the observed vote share vector. Thus, we are adding one more condition to the model, to fit it to the data – namely, that the predicted vote shares should be as close as possible to the observed vote shares.

In Figures 3a-3b, we graph these PUNEs in the full model for β=0.6. The space of the figure is (*t,r*); consult the legend of figure 3a. Recall, we fix the ER PUNE policy at its observed value.

Ideally, we desire that the observed policy lie in manifold of equilibrium PUNEs. That is not quite the case here: in both years, the observed L policy has a larger public sector and is more pro-immigrant than the PUNE policies for Left; the observed public-sector R policy calls for a smaller public sector than the *t* policy in the R-PUNEs, and the observed Right immigrant policy is less anti-immigrant than the equilibrium policies. To summarize, the PUNEs predict that both L and R parties should be more anti-immigrant than they are, and on the economic dimension, the parties are more polarized than they 'should' be, according to the model.

It must be emphasized that our utility function has only one degree of freedom; had we a more complex utility function, we would probably be able to calibrate the model to better fit the data. Nevertheless, it may also be the case that the preferences of

the Danish polity are in a state of flux, due to the immigration issue, and that the parties have not fully adjusted to them[7].

The set of PUNEs computed for these values of are presented in Tables 8a-8b. The second and third columns, labeled 'BPD' and 'BPC', present the relative bargaining power of the Opportunists with respect to the Militants at the PUNE, in the L and R parties, respectively. These relative bargaining powers at an equilibrium can be computed from a theory and formula provided in Roemer (2001, page 165). A relative bargaining power of 0.5 means the factions are equally strong in the bargaining game. When the relative bargaining power is greater (less) than 0.5, then the Opportunists (Militants) are more powerful in the party in question.

The observed vote shares in the 1998 election were (.48, .426, .094) respectively for *L,R,ER*. The average shares of the parties in the PUNEs in the above table are (.51, .34, .14). Thus, we predict that the Right should receive fewer votes, and the Left and Extreme Right more votes, than they did in reality. This seems consistent with our observation above that the Right's observed policy is insufficiently anti-immigrant, and the Left's public-sector policy is too far left.

In 2001, the observed vote shares were for L, R, and ER were (.422, .466, .112). Compared with 1998, the Left lost substantially and the Right and Extreme Right gained. The average shares in the PUNEs reported in Table 8b for L, R, and ER are (.584, .209,

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[7] Although we say *preferences* are in a state of flux, we really mean that the *type* to which a particular voter belongs is in a state of flux. Fundamental preferences, as defined by the function *v,* are assumed to be stable. But voters change their type when they change their attitudes towards immigrants or the size of the public sector.

.208). Thus, we do not correctly predict the change in vote share between Left and Right, although we do predict a large increase in vote share of the ER. Figure 3b provides some understanding: in reality, Left proposed a much more left policy on the public sector than it 'should' have, and Right a much more right policy on the public sector than it should have. Note from Figure 3b that Left's PUNE platforms are very close to the average ideal platform of voters, which explains why, in the PUNEs, it receives such a large vote share.

We next display the predicted partition of the space of voter types into the three party memberships at the average of the PUNEs in Tables 8ab. Note from equations (2.3) and (2.4) that the set of types that prefer one policy to another is the set of types below or above a straight line in $(\square,\square)$ space. In figures 4a-4b we present the partition of voter types into the three party memberships for the average of the PUNEs of Table 8. The figures present two straight lines drawn over a density plot of the distribution of voter types: in the density plot, light color means high density. The space is $(\square,\square)$. All types to the right of the light (green) line comprise Left; all types between the two lines comprise Right; all types to the left of the dark line comprise Extreme Right.

To show the effect of the size of $\sqcup$ on the party partition, we graph in figure 5 the party-membership partition for $\square$=1.4. The lines demarcating the party partition have much steeper slope in figure 4a than in figure 5. In other words, as the salience of the race issue increases, the racial position of the voter becomes more important for predicting his party membership. If the lines in these figures were vertical, party identification would be determined entirely by one's preferences on the economic issue.

Perhaps the most interesting feature about the type-decomposition into parties of figures 4ab and 5 is that the two lines in the figure diverge as θ increases. This means that, as θ increases, the 'space' for the Right party increases, in the sense that there are more values of θ that will generate a Right vote. For voters with a large ideal public-sector size, the choice is essentially between voting Left and Right, whereas for voters with a low ideal public-sector size, the choice is essentially between voting Left and Extreme Right. This does *not* correspond to anecdotal evidence about the shift towards extreme-right politics in Europe, in which it is often said that the unskilled native working class is shifting its vote from Left to Extreme Right because of the immigration issue -- and these voters should have a quite *high* ideal value for the size of the public sector.

By examining equation (2.4), we see that, at a PUNE, the slope of the line separating the Left and Right constituencies is $\frac{t^L - t^R}{r^R - r^L}$, and the slope of the line separating the Right and Extreme Right constituencies is $\frac{t^{ER} - t^R}{r^R - r^{ER}}$. Note that these ratios are just negative reciprocals of the slopes of the line segments joining the *policy pairs* (τ^L,τ^R) and (τ^R,τ^{ER}), respectively. Now in figure 4a, the three *observed* policies are virtually collinear, but the three *predicted* policies are not. If our party partition in figure 4a were drawn using the observed policies, it follows that the two separating lines would be virtually parallel. This shows how the divergence of the lines in figures 4 and 5 derives from the fact that our predicted equilibrium policies for the three parties are not collinear.

We summarize our results to this point as follows.

- in PUNE, both L and R parties are *more* anti-immigrant than the corresponding parties were, in fact, in 1998 and in 2001;
- in PUNE, the L party is *less* left on the economic issue than it was, in fact, in1998 and in 2001;
- in PUNE, the R party is *more* left on the economic issue than it was, in fact, in 1998 and in 2001;
- in PUNE the L and ER parties are larger (receive more votes) than they were, in observation, and the R party is smaller than it was, in observation.

There are several possible sources of the error the model makes with respect to prediction, among which are that:

1. actual parties do not contain a faction that attempts to represent those who vote for the party, as does the Militant faction in our model (more on this below) ;

2. the voter utility function we have used is not a sufficiently precise representation of voter preferences;

3. voters are strategic (in a multi-party election), while we have modeled them as sincere;

4. many voters are changing their type rapidly (e.g., becoming more anti-immigrant), and parties, especially the L and R, have misestimated the true distribution of types;

5. many citizens vote for a party out of habit or family tradition, even if the party they vote for is not the optimal choice given their type.

Note, in particular, that strategic voting and voting out of habit could well explain why the R party received, in reality, more votes than it 'should' have: that is, it may have received many votes that, absent effects 3 and 5, would have gone to the ER.

Regarding point #2, it would surely be desirable to introduce at least one more parameter in the voter's utility function. One might, as we mentioned earlier, wish to differentiate voters with respect to λ; this would require a three-dimensional type space, where a voter's type was (α,β,λ). While the theory of PUNEs on such a type space is no more complicated than on the two-dimensional type space, the computational problems become forbidding, because the equation-solving required for computing PUNEs would involve computing three-dimensional integrals, instead of two-dimensional integrals, which, given the existing *Mathematica* software, is, for practical purposes, infeasible.

Without further research, we do not wish to conjecture further about the relative importance of these deviations of reality from the model.

6. The policy bundle and anti-solidarity effects: Computation

For values of $\beta \in \{0.4,0.6,1.0,1.4\}$ in 1998, and $\beta \in \{0.4,0.65,1.0,1.4\}$ in 2001, we computed PUNEs for the full two-dimensional model. For a given PUNE, *i*, we define the 'expected tax policy' as $(t^{\exp})^i = (\alpha^L t^L + \alpha^R t^R + \alpha^{ER} t^{ER})^i$, that is, the share-weighted average of the 'tax' policy of the parties[8]. Our summary statistic for the tax policy of the election is the average of $\{t^{\exp^i}\}$ over all the PUNEs found for the particular value of β. We define this statistic as $t^{\exp}(\beta)$.

[8] This is meant to be a simple approximation of the process by which legislated outcome compromises among the positions of parties.

In the first counterfactual, we compute PUNEs for a model with *two parties,* in which the policy space is unidimensional , as described in section 3. We restricted to PUNEs in the counterfactual for which the vote share of the L party was between 30% and 70%. This can be justified by saying that the Opportunists in either the L or the R party would be sufficiently strong to veto any policy which would give their party less than 30% of the vote.

We chose a two-party model for the counterfactual, because, first, it would be computationally difficult to find equilibria for three *endogenous parties* (in the counterfactual model, we would have no way to set the policy of the ER party exogenously). Secondly, were politics indeed unidimensional, it is questionable that an ER party would receive an appreciable vote share, so a two-party model is a reasonable counterfactual.

Recall that, in the first counterfactual, we use the *actual distribution* of voter types, *F*. This counterfactual is equivalent to holding an election where the government's position on the immigration issue is fixed, and all voters take it to be so. We again take as the summary statistic the average of share-weighted tax policies found in all PUNEs (for which the shares of both parties are at least 30%). Denote this value $t_I^{\exp}(\square)$.

For the *second counterfactual,* which computes the anti-solidarity effect, we changed the distribution of voter types to the estimated racism-free distribution, *G,* described in section 4. We took the racism -free distribution to be a normal distribution on $\square$ with standard deviation 0.85 and mean in the set $\square^* \square \{0,0.15,0.3\}$. Thus, for each value of $\square$, we ran three versions of the second counterfactual.

For each counterfactual, we again take the summary statistic for expected policy on the size of the public sector as the average of the 'expected tax policies' over all PUNEs found. Denote this value by $t_{II}^{\exp}(\lambda,\lambda^*)$.

In the unidimensional models, it remains the case that there is a two-manifold of PUNEs. The policy equilibria live, now, in a two-dimensional space (one dimension for each party), and so the PUNEs pave a region in the plane. We computed over 400 PUNEs for each version of the counterfactual models.

We now define the PBE and the ASE, which are functions of (λ,λ^*) by:

$$PBE(\lambda) = t_I^{\exp}(\lambda) - t^{\exp}(\lambda)$$
$$ASE(\lambda,\lambda^*) = t_{II}^{\exp}(\lambda,\lambda^*) - t_I^{\exp}(\lambda).$$

Clearly the total effect of xenophobia on the size of the public sector is:

$$TOT(\lambda,\lambda^*) = PBE(\lambda) + ASE(\lambda,\lambda^*) = t_{II}^{\exp}(\lambda,\lambda^*) - t^{\exp}(\lambda).$$

Tables 9a-9b report the results.

The appropriate way to think of the size of these effects is in comparison to the standard deviation of the distribution of ideal public–sector values (σ), which is 0.92 in 1998 and 0.91 in 2001. Note that *both* the PBE and ASE are quite insensitive to changes in λ. By definition, the PBE is invariant with respect to changes in λ^*. Thus, virtually all the variation in the two effects is attributable to changes in the ASE as we vary the value of λ^*. As we would predict, the ASE increases as we increase the value of λ^*.

The 1998 PBE is 6-12% of one standard deviation in the distribution of ideal tax rates, and the 2001 PBE is smaller still. We should expect a positive PBE for Denmark, because, as we demonstrated earlier, the observed positions of the eleven parties are

strongly correlated across the two dimensions: as Table 2 shows, parties that are more right-wing on the immigration issue are also more right-wing on the economic issue. Therefore, a voter who strongly wishes to vote anti-immigrant must vote anti-tax, even if he wants a large public sector.

The fact that the PBE fell between 1998 and 2001 is theoretically predictable. Note that the ER party became significantly less extreme (and right) on the economic issue in 2001. Thus, it became possible to switch one's vote from Right to Extreme Right in 2001 without supporting a much more right position on the public sector. (This was even more true at the observed platforms than at the PUNE platforms.) This suggests that the PBE should diminish.

It appears that the PBE is significantly smaller than the ASE in both years and for all values of the parameters.

Our summary of Table 9 is that the total effect of xenophobia in Denmark on the equilibrium size of the public sector is to reduce that size by somewhere between 0.25 and 0.50 of one standard deviation of the actual distribution of the polity's ideal sizes of the public sector. The effect does not seem to have changed substantially between 1998 and 2001. Note, however, that these effects are computed taking the full-model PUNE policies as the benchmark, not the observed policies— except for the ER party group, whose PUNE policy is its observed policy.

7. Conclusion

Our model of party unanimity Nash equilibrium conceptualizes party competition in a way that provides existence of political equilibrium when the policy space is multi-

dimensional, and, moreover, predicts that parties propose different policies in equilibrium. By virtue of these features, it is superior to the Downsian model of purely opportunist politics, in which equilibria rarely exist if the policy space is multi-dimensional, and to other models of political equilibrium with multi-dimensional policy spaces (e.g., the model of Coughlin(1992)), which predict that parties propose the same policy in equilibrium. The PUNE model conceptualizes the decision makers in parties as having varied interests, regarding winning versus representation, and that the factions organizing these disparate interests bargain with other when facing the opposition parties' platforms.

Like all equilibrium models, ours is best viewed as one that describes a political system in which preferences of voters are stable. In periods when voter preferences are in flux, we cannot expect the PUNE model to give perfect predictions. With stable constituencies, party entrepreneurs will come to know their constituencies' interests well, and we can expect that those entrepreneurs who wish to represent constituents will do so with more precision than when voter preferences are unstable and constituencies are shifting. The mechanism by which this occurs may well be that those Militants who rise within the party structure *are* ones who best represent the constituents' interests. Once ensconced, however, a particular Militant will have a career within the party that may last for years or decades. Thus, in periods of voter-preference flux, the established Militants in a party may cease to represent its evolving constituency.

We believe this may be the case in Denmark[9], and so our calculations concerning the effect of voter xenophobia on the size of the public sector are ones we would expect to hold in the future, if voter preferences remain as they are now, and parties adjust to them over time. In 2001, the share-weighted average of the observed parties' policies on the size of the public sector was -0.324 ; the share-weighted averages of the PUNE policies, depending upon the value of β, are -.271, -.307, -.280, and -.275 , for β= 0.4, 0.65, 1.0, and 1.4, respectively. Recalling that a public sector size of '0' corresponds to the present size, we might predict that the size of the public sector will shrink in Denmark[10].

Our policy space is only two dimensional. In actual politics, the policy space has many more dimensions. In particular, it is possible, in reality, to differentiate public-sector policy towards immigrants from policy towards natives: for example, immigrants may receive less favorable treatment with regard to transfer payments than natives, as is currently the case in Denmark. To represent this possibility in our model would require a third policy dimension. With such a third dimension, both the anti-solidarity and policy-bundle effects should decrease, because presumably parties could then propose to retain high public-sector benefits for natives, while reducing them for immigrants. We

[9] For example, the SDP's militants may reflect the preferences of its constituents in an era which is now past.

[10] Of course, parliamentary politics produce an outcome that is considerably more complex than that which would be predicted by taking a share-weighted average of the parties' positions.

cannot, therefore, predict that the *total* size of the welfare state will radically fall in Denmark[11].

Indeed, this point illustrates the necessity for political economists to model political competition as occurring over multi-dimensional policy spaces. Our work begins this task, although, as we have just noted, it still falls short of what is desirable. The binding constraint, at this point, is the difficulty of computing equilibria in real time, when the dimension of the type space and/or policy space is larger than two.

[11] We contrast this with the United States, where voter racism is directed primarily towards African-Americans, who, as citizens, cannot be legally discriminated against, as can aliens. Thus, we would expect the size of the welfare state to be more affected by voter racism in the US than by voter xenophobia in Denmark. See Lee and Roemer (2004) for further analysis.

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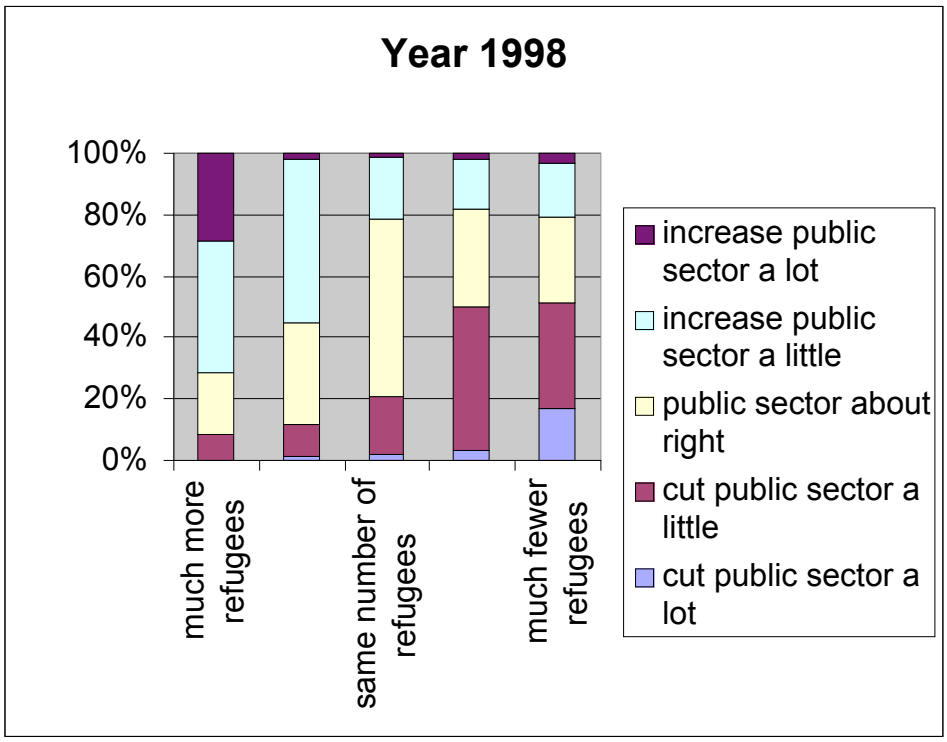


Figure 1a The distribution of economic views by xenophobic type, year 1998

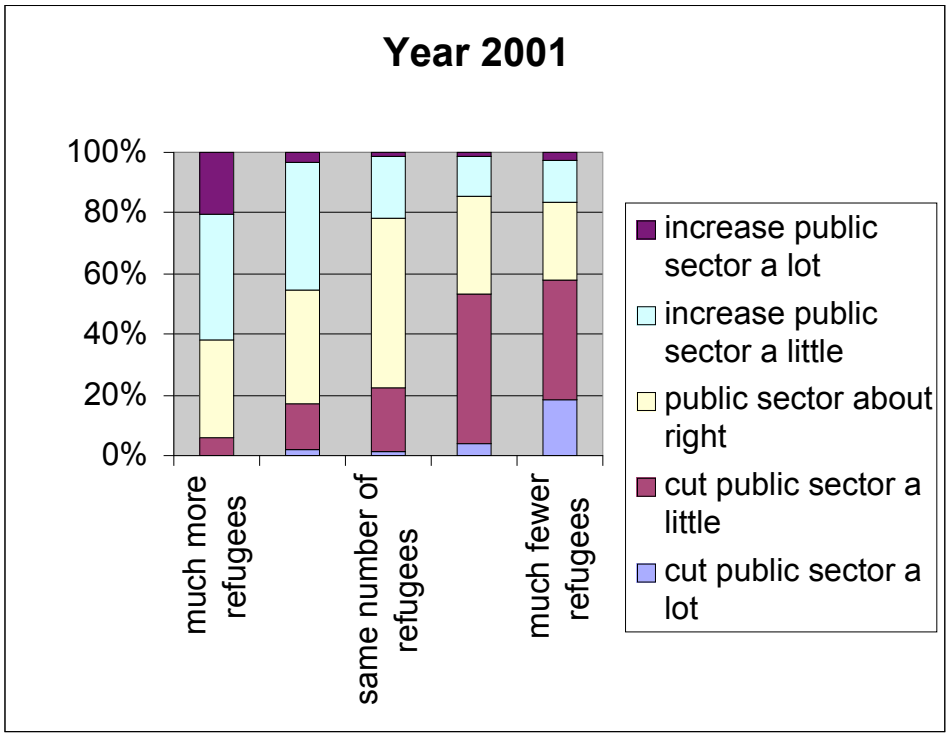
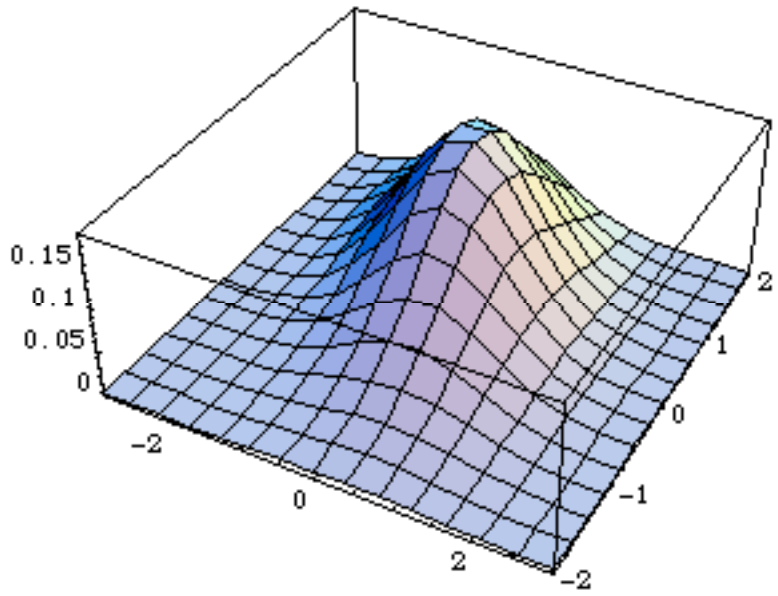


Figure 1b The distribution of economic views by xenophobic type, year 2001

Figure 2 The bivariate normal density function for 1998



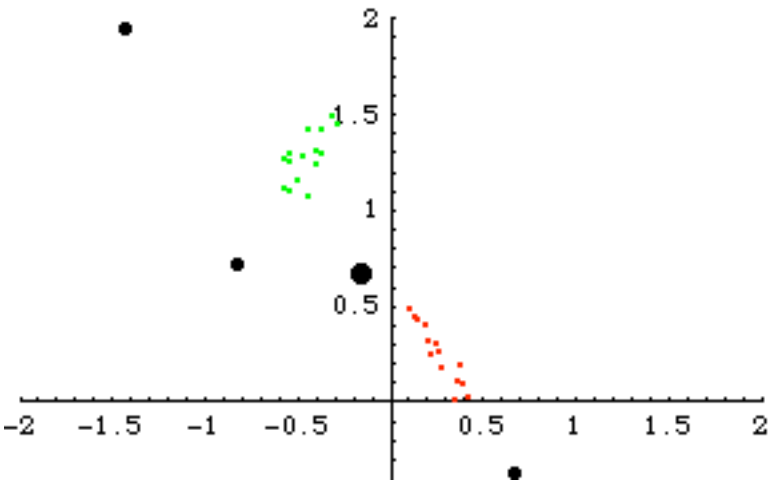


Figure 3a PUNEs, 1998, □=0.6.

Legend: Abscissa is *t*, ordinate is *r*. The large dot is the average ideal point of voters. The three small dots are the observed policies of ER,R, and L parties. The cluster of red dots are PUNE policies of Left; the cluster of green dots are PUNE policies of Right.

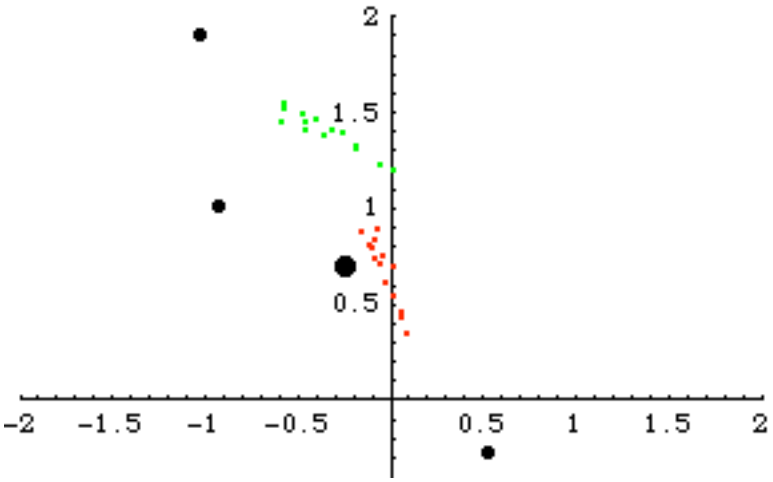


Figure 3b PUNEs, 2001, □=0.65. See legend for figure 3a.

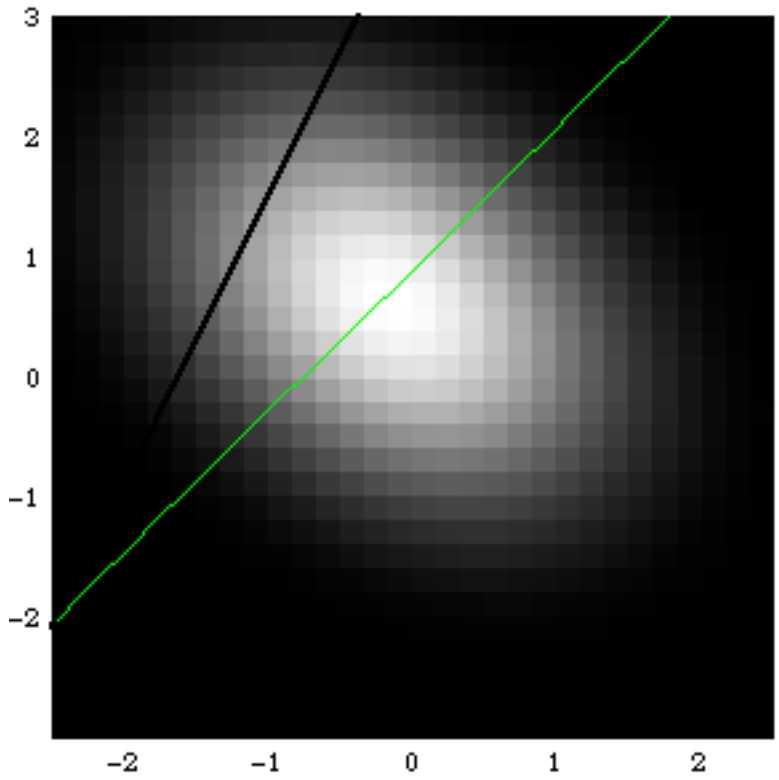


Figure 4a Partition of type space into three party constituencies, 1998, □=0.6

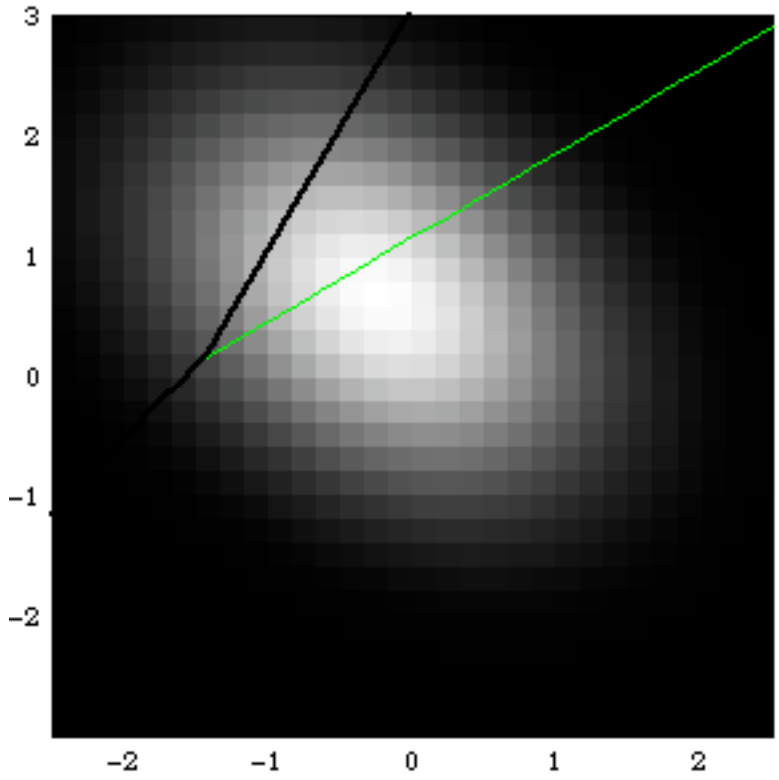


Figure 4b Partition of type space into three party constituencies, 2001, ,□=0.65

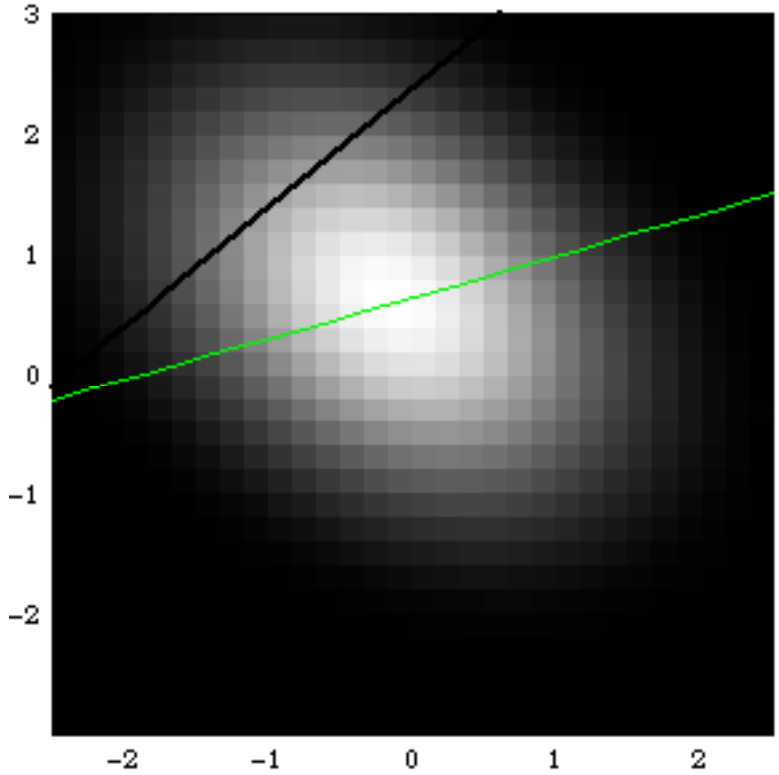


Figure 5 Party partition, 1998 average PUNEs, □=1.4

	1998			2001		
	Reported vote share (1)	Actual vote share	Left-Right (11-point scale)	Reported vote share (1)	Actual vote share	Left-Right (11-point scale)
United Left Wing party	3.2	2.7	1.21	2.7	2.4	1.47
Socialist People's Party	8.8	7.5	2.52	6.4	6.4	2.78
Social Democratic Party	31.5	36.1	4.35	27.6	29.1	4.38
Liberal Democrats	4.5	3.9	4.67	5.5	5.2	4.61
Center Democratic Party	4.4	4.3	5.54	1.2	1.2	Not Asked
Christian People's Party	2.2	2.5	5.93	2.1	2.3	5.48
Conservative People's Party	10.7	8.9	7.23	9.0	9.1	6.98
Liberal Party	25.3	24.0	7.55	34.4	31.3	7.32
Danish People's Party	7.2	7.4	8.64	10.9	12.0	8.13
Progress Party	2.2	2.4	8.64	0.3	0.6	Not Asked

Note: (1) Among voters who answered the question.

Table 1 Danish Political Parties – Vote shares

	1998		2001	
	More Public Sector	Immigration Stand point	More Public Sector	Immigration Stand point
United Left Wing party	1.40	-1.24	1.08	-1.05
Socialist People's Party	1.13	-0.96	0.89	-0.78
Social Democratic Party	0.53	-0.12	0.46	-0.08
Liberal Democrats	0.20	-0.32	0.22	-0.35
Center Democratic Party	-0.07	-0.20	Not asked	Not asked
Christian People's Party	0.00	-0.12	0.07	-0.17
Conservative People's Party	-0.93	0.88	-0.88	1.04
Liberal Party	-1.00	0.88	-1.01	1.07
Danish People's Party	-1.40	1.96	-1.02	1.90
Progress Party	-1.53	1.88	Not asked	Not asked

Table 2 Danish Political Parties – Perceived platforms

	#1	#2	#3	#4	Total
Immigration of refugees and immigrants including the fight against racism	305	195	123	47	670
Health sector and the hospital sector	305	256	107	38	706
Environment / Environmental issues	168	102	80	27	377
Conditions for the aged	153	161	60	19	393
Employment, unemployment including labor market policy	147	86	45	25	303
The economy	130	50	26	10	216
Families with children / day-care centers	119	144	62	16	341
Social problems including social policy	80	58	25	8	171
EU-related to in general, general handling of the Amsterdam treaty	78	52	31	14	175
Nursing homes / domiciliary care	59	88	48	7	202
Balance of payment / foreign debt	34	24	11	6	75
Violence, crime, law and order / justice policy	30	52	45	23	150
Tax reform / tax burden, including deterioration of private pensions	21	20	16	4	61
Unclear answer : everything	20	3	0	0	23
State schools / schools policy	19	42	36	11	108
Distribution of public expenditure	19	13	10	1	43
The pollution problem	16	8	4	4	32
Education / education standards	14	35	27	17	93
Social benefits including maternity and other such leave	14	9	5	0	28
Welfare state without further details	14	5	2	0	21
Do not know	28	1	8	0	29
Do not answer	19	362	1,053	1,645	

Note : There are 2,001 respondents in the sample.

Question: We have, as you know, just had parliamentary elections, and therefore I would like to ask you what problems you think are the most important ones that politicians should be doing something about today?

(Most important problem #1, #2, #3, #4)

Table 3 The most important problems in Denmark: 1998 election survey

	1998 elections		2001 elections	
	Reported vote share	Actual vote share	Reported vote share	Actual vote share
Left	48.0	50.3	42.2	43.1
Right	42.6	39.9	46.6	44.5
ER	9.4	9.8	11.2	12.6

Table 4a Parties' vote shares

	1998			2001		
	Pub. Sector	Immigration	Vote share	Pub. Sector	Immigration	Vote share
Left	+0.67	-0.37	48.0	+0.53	-0.28	42.2
Right	-0.83	+0.72	42.6	-0.93	+1.01	46.6
ER	-1.43	+1.94	9.4	-1.02	+1.90	11.2
Voters	-0.15	+0.67		-0.24	+0.70	

Notes: (1) Observed policy of the Right ignoring the Center Democratic Party. (2) Observed policy of the Extreme Right ignoring the Progress Party. (3) Observed policy of the Right assuming that the Center Democratic Party proposes the same policy in 2001 as in 1998. (4) Observed policy of the Extreme Right assuming that the Progress Party proposes the same policy in 2001 as in 1998. (5) In the 2001 survey there is no question about the perceived position of the Center Democratic Party and of the Progress Party. Since these parties receive only a small share of the votes (resp. 1.2 % and 0.3%) we simply ignore them when computing the average observed policies of the Right and Extreme Right coalitions.

Table 4b Voters' and parties' positions on the various issues

	1998		2001	
	(1)	(2)	(3)	(4)
Anti Immigrants	+0.324***	+0.207***	+0.409***	+0.364***
	(0.035)	(0.044)	(0.036)	(0.043)
Pro Public Sector	-0.628***	-0.587***	-0.595***	-0.556***
	(0.040)	(0.048)	(0.041)	(0.046)
Constant	-0.236***	-0.048	-0.195***	+0.370
	(0.040)	(0.376)	(0.040)	(0.366)
Law and order		+0.212***		+0.164***
		(0.044)		(0.041)
Environment		-0.254***		-0.226***
		(0.025)		(0.031)
Household income		+0.060***		+0.038***
		(0.011)		(0.010)
Female		+0.201***		-0.004
		(0.078)		(0.074)
Age		-0.058***		-0.047***
		(0.014)		(0.014)
Age square		+0.00065***		+0.0004***
		(0.0001)		(0.0001)
City		-0.044*		-0.050*
		(0.027)		(0.028)
Education		+0.122***		+0.115***
		(0.045)		(0.043)
Nb observations	1,739	1,472	1,814	1,644
Log likelihood	-972.98	-754.57	-976.50	-818.20
Pseudo R2	0.1916	0.2604	0.2101	0.2715

Note: *** means significant at the 1% level, ** at the 5% level and * at the 10% level.
Standard errors are in parentheses below the value of the coefficients.

Table 5 Dependent variable: Vote for the Right coalition (Probit estimation)

	1998		2001	
Anti Immigrants	-0.295***	-0.173***	-0.308***	-0.226***
	(0.020)	(0.023)	(0.019)	(0.023)
Constant	+0.043*	+0.105	-0.028	0.051
	(0.024)	(0.203)	(0.023)	(0.191)
Unemployed Lazy		-0.103***		-0.044***
		(0.018)		(0.017)
Take Advantage		-0.104***		-0.125***
		(0.020)		(0.018)
Same econ. conditions for all		+0.088***		+0.104***
		(0.016)		(0.015)
Household Income		-0.017***		-0.021***
		(0.006)		(0.006)
Female		+0.313***		0.203***
		(0.043)		(0.041)
Age		+0.014*		0.013*
		(0.008)		(0.007)
Age squared		-0.0002**		-0.0002**
		(8.10-5)		(7.10-5)
City		-0.018		0.015
		(0.015)		(0.015)
Education		-0.036		-0.061***
		(0.025)		(0.023)
Obs.	1,886	1,483	1,933	1,645
R-squared	0.1066	0.2411	0.1166	0.2156

Note: *** means significant at the 1% level, ** at the 5% level and * at the 10% level. Standard errors are in parentheses below the value of the coefficients.

Table 7 Dependent variable: *ProPublicSector* (Estimation with OLS)

Out[197]//TableForm=

γ	BPD	BPC	tD	tC	tR	RD	RC	RR	φD	φC	φR
0.6	0.399933	0.373611	0.187511	-0.530509	-1.43	0.383065	1.17168	1.94	0.526849	0.336776	0.136375
0.6	0.37639	0.406542	0.144809	-0.54999	-1.43	0.430113	1.26053	1.94	0.551225	0.316798	0.131977
0.6	0.7803	0.702627	0.418662	-0.374411	-1.43	0.0232355	1.29131	1.94	0.45147	0.395047	0.153483
0.6	0.601719	0.784507	0.272384	-0.371659	-1.43	0.182387	1.42355	1.94	0.510953	0.334018	0.155029
0.6	0.341213	0.249736	0.132236	-0.570229	-1.43	0.451852	1.11011	1.94	0.541017	0.324393	0.13459
0.6	0.379145	0.276653	0.181191	-0.539883	-1.43	0.398239	1.09717	1.94	0.52245	0.339407	0.138143
0.6	0.671479	0.681849	0.353723	-0.405174	-1.43	0.115576	1.30611	1.94	0.476523	0.374101	0.149375
0.6	0.689845	0.606794	0.390056	-0.40833	-1.43	0.0942622	1.23895	1.94	0.459742	0.390902	0.149356
0.6	0.787926	0.856313	0.342595	-0.28986	-1.43	0.01895	1.45678	1.94	0.480427	0.352271	0.167302
0.6	0.373576	0.434718	0.135341	-0.551226	-1.43	0.440652	1.29719	1.94	0.558494	0.310262	0.131243
0.6	0.514772	0.589351	0.25823	-0.470796	-1.43	0.267273	1.28949	1.94	0.511853	0.347137	0.14101
0.6	0.477118	0.727225	0.199937	-0.442382	-1.43	0.318849	1.4192	1.94	0.542312	0.312484	0.145204
0.6	0.335709	0.323342	0.0983347	-0.580701	-1.43	0.49031	1.27063	1.94	0.569233	0.302424	0.128343
0.6	0.538201	0.827951	0.217188	-0.319222	-1.43	0.243519	1.4879	1.94	0.532889	0.304051	0.16306
0.6	0.460262	0.400469	0.248933	-0.496988	-1.43	0.309072	1.15816	1.94	0.503977	0.355563	0.14046
0.6	0.57051	0.418624	0.368344	-0.448017	-1.43	0.187832	1.07156	1.94	0.456896	0.394257	0.148847

Table 8a PUNE values, 1998, □=0.60

Legend: BPD = relative bargaining power of Opportunists in Left party;
BPC = relative bargaining power of Opportunists in Right party;
{tD,tC,tR}=equilibrium values of parties {Left, Right, Extreme Right} on public-sector size; {RD,RC,RR}=equilibrium values of parties {Left, Right, ER} on immigration issue; {□D, □C,□R}= vote shares of parties {Left, Right, ER} at equilibrium.

Out[193]//TableForm=

γ	BPD	BPC	tD	tC	tR	RD	RC	RR	φD	φC	φR
0.65	0.159258	0.86083	0.130198	-0.55619	-1.02	0.352768	1.31471	1.9	0.528222	0.297016	0.174763
0.65	0.3585	0.806049	0.0536788	-0.463069	-1.02	0.456902	1.41114	1.9	0.554596	0.25426	0.191143
0.65	0.356379	0.769684	0.0610684	-0.360036	-1.02	0.429893	1.38565	1.9	0.541106	0.249217	0.209677
0.65	0.329206	0.581097	0.0821096	0.0147632	-1.02	0.348748	1.20141	1.9	0.487385	0.245266	0.267349
0.65	0.326458	0.820803	0.0111246	-0.582892	-1.02	0.541232	1.45636	1.9	0.585474	0.24479	0.169737
0.65	0.259694	0.763103	-0.0243629	-0.459188	-1.02	0.612109	1.452	1.9	0.590581	0.216498	0.192921
0.65	0.140491	0.350842	0.0175694	-0.0536123	-1.02	0.696006	1.22979	1.9	0.546916	0.196739	0.256346
0.65	0.181302	0.577725	-0.05292	-0.308667	-1.02	0.718393	1.40754	1.9	0.593627	0.189316	0.217056
0.65	0.143111	0.418821	-0.0403271	-0.181871	-1.02	0.751402	1.32044	1.9	0.578117	0.186061	0.235822
0.65	0.215669	0.800384	-0.09035	-0.573309	-1.02	0.734152	1.51938	1.9	0.629789	0.196675	0.173536
0.65	0.161902	0.635006	-0.100047	-0.408536	-1.02	0.79952	1.46465	1.9	0.621983	0.176508	0.201509
0.65	0.128963	0.454496	-0.0815011	-0.263781	-1.02	0.830664	1.39415	1.9	0.606073	0.170888	0.223039
0.65	0.166649	0.692417	-0.114946	-0.473424	-1.02	0.811558	1.4971	1.9	0.63292	0.175808	0.191272
0.65	0.0916503	0.292914	-0.0740528	-0.179772	-1.02	0.888176	1.31286	1.9	0.596623	0.166886	0.236492
0.65	0.15248	0.753027	-0.160617	-0.571451	-1.02	0.882611	1.554	1.9	0.659715	0.164627	0.175658

Table 8b PUNE values, 2001, □=0.65
See Legend for table 8a.

	□*	ASE	PBE	Total
□=0.4	0	.142	.066	.208
	.15	.235		.301
	.30	.362		.428
□=0.6	0	.103	.079	.182
	.15	.227		.306
	.30	.400		.479
□=1.0	0	.139	.095	.234
	.15	.198		.293
	.30	.376		.471
□=1.4	0	.148	.052	.200
	.15	.291		.343
	.30	.407		.459

Table 9a The Anti-Solidarity (AS) and policy-bundle (PB) effects, 1998 PUNEs

	□*	ASE	PBE	Total
□=0.4	0	.163	.059	.222
	.15	.278		.337
	.30	.380		.439
□=0.6	0	.280	.006	.286
	.15	.340		.346
	.30	.492		.498
□=1.0	0	.235	.033	.268
	.15	.332		.365
	.30	.441		.474
□=1.4	0	.230	.036	.266
	.15	.265		.301
	.30	.393		.429

Table 9b The anti-solidarity (AS) and policy bundle (PB) effects, 2001 PUNEs

Appendix Definition, mean, and standard deviation of the independent variables in tables 6 and 7.

Pro Public Sector
Question:
Among other things, the parties disagree about how big the public sector should be. Some parties say we should cut down on public revenue and expenditure, other say we should expect increasing expenditure and revenue in the future. Where would you place yourself?
Answers:
Public revenue and expenditure should be cut down a lot (-2)
Public revenue and expenditure should be cut down a little (-1)
Public revenue and expenditure are appropriate as they are now (0)
Public revenue and expenditure should increase a little (+1)
Public revenue and expenditure should increase a lot (+2)

Anti Immigrants
Question:
Among other things, the parties disagree about how many refugees we can take. Some say we take too many. Other say we could easily take more. Where would you place yourself?
Answers:
We should take a lot more refugees than we do now (-2)
We should take somewhat more refugees than we do now (-1)
We should keep on taking the same number as we do now (0)
We should take somewhat fewer refugees than we do now (+2)
We should take far fewer refugees than we do now (+2)

Law And Order
Question:
I am now going to mention some view points from the political debate, which one can agree with or disagree with. Violent offenses should be punished much harder than they are today.
Answers:
Strongly disagree (-2)
Slightly disagree (-1)
Neither agree or disagree (0)
Agree (+1)
Strongly agree (+2)

Environment
Question:
I am now going to mention some view points from the political debate, which one can agree with or disagree with. The economic growth should be insured through building up of industry, even if it conflicts with environmental interests.

Answers:
Strongly agree (-2)
Agree (-1)
Neither agree or disagree (0)
Slightly disagree (+1)
Strongly disagree (+2)

Same econ conditions
Question
I am now going to mention some view points from the political debate, which one can agree with or disagree with. In politics one should aim to provide the same economics conditions for everyone, regardless of education or occupation.
Answers
Strongly disagree (-2)
Slightly disagree (-1)
Neither agree or disagree (0)
Agree (+1)
Strongly agree (+2)

Unemployed Lazy
Question
I am now going to mention some view points from the political debate, which one can agree with or disagree with. In reality, many of the unemployed don't want to take a job.
Answers
Strongly disagree (-2)
Slightly disagree (-1)
Neither agree or disagree (0)
Agree (+1)
Strongly agree (+2)

Take Advantage
Question
I am now going to mention some view points from the political debate, which one can agree with or disagree with. There are too many getting social security benefits, who don't need it.
Answers
Strongly disagree (-2)
Slightly disagree (-1)
Neither agree or disagree (0)
Agree (+1)
Strongly agree (+2)

Household income
Question
What is your household's total annual gross income – ie before tax?
Answers

Under 75,000 kr (1)
Between 75,000 and 99,999 kr (2)
Between 100,000 and 124,999 kr (3)
Between 125,000 and 149,999 kr (4)
Between 1505,000 and 174,999 kr (5)
Between 175,000 and 199,999 kr (6)
Between 200,000 and 249,999 kr (7)
Between 250,000 and 299,999 kr (8)
Between 300,000 and 349,999 kr (9)
Between 350,000 and 399,999 kr (10)
Between 400,000 and 449,999 kr (11)
Between 450,000 and 499,999 kr (12)
Between 500,000 and 599,999 kr (13)
Between 600,000 and 699,999 kr (14)
Between 700,000 and 799,999 kr (15)
800,000 kr and over (16)

City
Question
What type of town do you live in?
Answer
Rural district (1)
Town with less than 10,000 inhabitants (2)
Town with 10,001-50,000 inhabitants (3)
Town with 50,001-500,000 inhabitants (4)
Capital city area (5)

Education
Question
What level of schooling did you complete?
Anwers
Primary schools, 7 years or less (1)
Primary and lower secondary school, 8/9 years (2)
10 years schooling / School leaving exam (3)
Matriculation / Senior high school exam (4)

Means and standard deviations

	1997			2001		
	Mean	St. dev.	Obs.	Mean	St. dev.	Obs.
Anti Immigrants	+0.67	1.02	1948	+0.70	1.01	1972
Pro Public Sector	-0.15	0.92	1914	-0.24	0.91	1967
Law and order	+1.38	1.01	1976	+1.43	0.99	2008
Environment	+0.54	1.29	1933	+0.49	1.28	1944
Unemployed Lazy	+0.09	1.40	1935	+0.02	1.39	1977
Take Advantage	+0.64	1.23	1844	+0.54	1.27	1886
Same Econ Cond.	-0.42	1.39	1933	-0.29	1.41	1968
Household income	8.59	3.91	1746	9.58	4.15	1857
Female	0.46	0.50	2001	0.48	0.50	2026
Age	46.00	16.63	2000	47.41	19.95	2026
City	2.89	1.44	1998	2.73	1.34	2023
Education	2.72	1.09	1992	2.76	1.08	2025